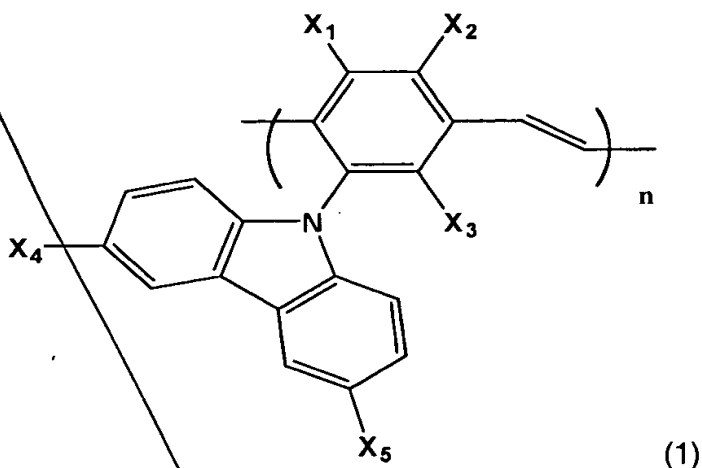


What is claimed is:

1. An electroluminescent polymer, represented by the following formula

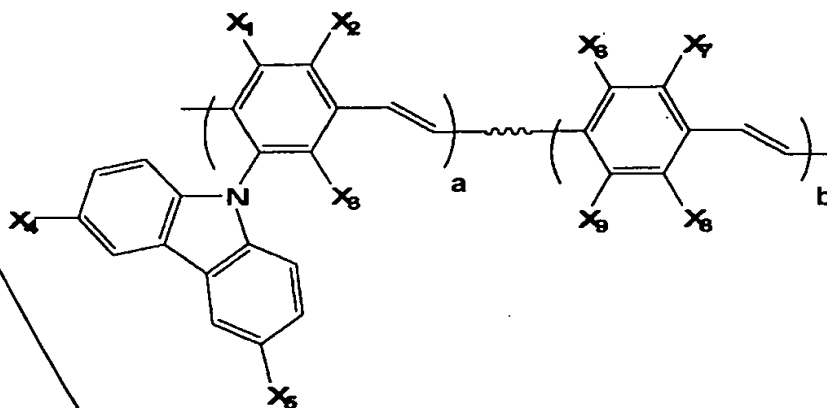


wherein X_1 to X_5 are independently a hydrogen atom, a linear alkyl or alkoxy group having 1 to 40 carbon atoms, a branched alkyl or alkoxy group having 3 to 40 carbon atoms, a cyclic alkyl group having 5 to 40 carbon atoms, a silyl group, or an aromatic group having 6 to 14 carbon atoms which is unsubstituted or substituted with at least one selected from the group consisting of an alkoxy group having 1 to 40 carbon atoms and an amine group.

2. The electroluminescent polymer as defined in claim 1, wherein the number average molecular weight of the electroluminescent polymer is about 10,000-1,000,000, and the molecular weight distribution thereof is about 1.5-5.0.

3. An electroluminescent polymer comprising (a) a PPV-based monomer substituted with a carbazole and an aliphatic alkyl or alkoxy group, and (b) a PPV-

based monomer, the electroluminescent polymer represented by the following formula (3):



(3)

wherein, X_1 to X_9 are independently a hydrogen atom, a linear alkyl or alkoxy group having 1 to 40 carbon atoms, a branched alkyl or alkoxy group having 3 to 40 carbon atoms, a cyclic alkyl group having 5 to 40 carbon atoms, a silyl group substituted with at least one alkyl group having 1 to 40 carbon atoms, or an aromatic group having 6 to 14 carbon atoms which is unsubstituted or substituted with at least one selected from the group consisting of an alkoxy group having 1 to 40 carbon atoms and an amine group, and a and b are numbers such that $0.1 \leq a/(a+b) \leq 0.9$, and wherein at least one of the X substituents is a group other than a hydrogen atom.

4. The electroluminescent polymer as defined in claim 3, wherein the number average molecular weight of the electroluminescent polymer is about 10,000-1,000,000, and the molecular weight distribution thereof is about 1.5-5.0.

5. The electroluminescent polymer as defined in claim 3, wherein the monomer (b) is selected from the group consisting of 2,5-bis(chloromethyl)-4-

3 (2'-ethylhexyloxy)anisole and 2,5-bis(chloromethyl)-3',7'-dimethyloctyloxy-4-
4 methoxybenzene.

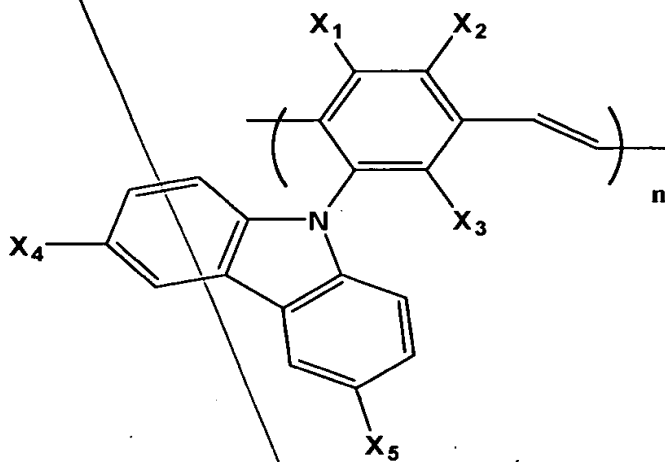
1

09986136-110701

6. An electroluminescent polymer composition comprising

(a) an electroluminescent polymer, represented by the following formula

(1):



(1)

wherein X_1 to X_5 are independently a hydrogen atom, a linear alkyl or alkoxy group having 1 to 40 carbon atoms, a branched alkyl or alkoxy group having 3 to 40 carbon atoms, a cyclic alkyl group having 5 to 40 carbon atoms, a silyl group, or an aromatic group having 6 to 14 carbon atoms which is unsubstituted or substituted with at least one selected from the group consisting of an alkoxy group having 1 to 40 carbon atoms and an amine group, and

(b) a PPV-based polymer,

wherein the electroluminescent polymer (a) and the PPV-based polymer (b) are mixed in a weight ratio of about 1:99-99:1.

7. The electroluminescent polymer composition as defined in claim 6,

wherein the PPV-based polymer (b) is selected from the group consisting of

poly(1-methoxy-4-(2'-ethylhexyloxy)-2,5-phenylene vinylene) and poly(1-methoxy-

4-(3',7'-dimethyloctyloxy)-2,5-phenylene vinylene).

09986136-110701

1 8. An electroluminescent device having a structure selected from the
2 group consisting of an anode/light emitting layer/cathode, an anode/buffer
3 layer/light emitting layer/cathode, an anode/buffer layer/hole transport layer/light
4 emitting layer/cathode, an anode/buffer layer/hole transport layer/light emitting
5 layer/electron transport layer/cathode, and an anode/buffer layer/hole transport
6 layer/light emitting layer/hole blocking layer/cathode, wherein the light-emitting
7 layer comprises an electroluminescent polymer of claim 1.

1 9. The device as defined in claim 8, wherein the buffer layer
2 comprises a material selected from the group consisting of polythiophene,
3 polyaniline, polyacetylene, polypyrrole and polyphenylene vinylene derivatives.

1 10. The device as defined in claim 8, wherein the hole blocking layer
2 comprises LiF or MgF₂.

1 11. An electroluminescent device having a structure selected from the
2 group consisting of an anode/light emitting layer/cathode, an anode/buffer
3 layer/light emitting layer/cathode, an anode/buffer layer/hole transport layer/light
4 emitting layer/cathode, an anode/buffer layer/hole transport layer/light emitting
5 layer/electron transport layer/cathode, and an anode/buffer layer/hole transport
6 layer/light emitting layer/hole blocking layer/cathode, wherein the light-emitting
7 layer comprises an electroluminescent polymer of claim 3.

1 12. The device as defined in claim 11, wherein the buffer layer comprises
2 a material selected from the group consisting of polythiophene, polyaniline,
3 polyacetylene, polypyrrole and polyphenylene vinylene derivatives.

1 13. The device as defined in claim 11, wherein the hole blocking layer
2 comprises LiF or MgF_2 .

1 14. An electroluminescent device having a structure selected from the
2 group consisting of an anode/light emitting layer/cathode, an anode/buffer
3 layer/light emitting layer/cathode, an anode/buffer layer/hole transport layer/light
4 emitting layer/cathode, an anode/buffer layer/hole transport layer/light emitting
5 layer/electron transport layer/cathode, and an anode/buffer layer/hole transport
6 layer/light emitting layer/hole blocking layer/cathode, wherein the light-emitting
7 layer comprises an electroluminescent polymer composition of claim 6.

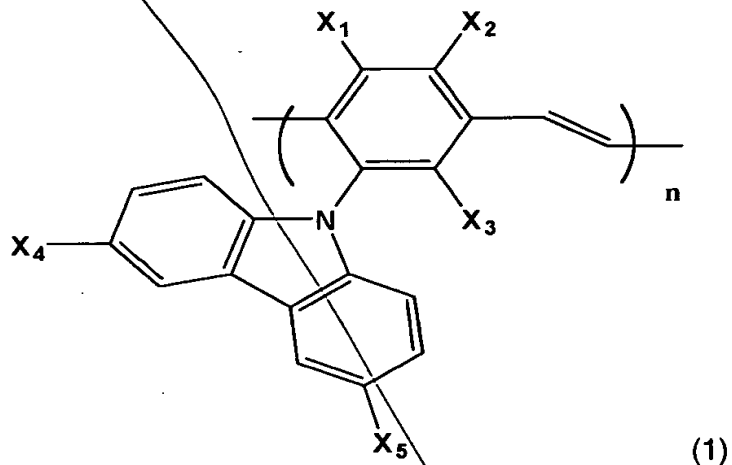
1 15. The device as defined in claim 14, wherein the buffer layer
2 comprises a material selected from the group consisting of polythiophene,
3 polyaniline, polyacetylene, polypyrrole and polyphenylene vinylene derivatives.

1 16. The device as defined in claim 14, wherein the hole blocking layer
2 comprises LiF or MgF_2 .

1

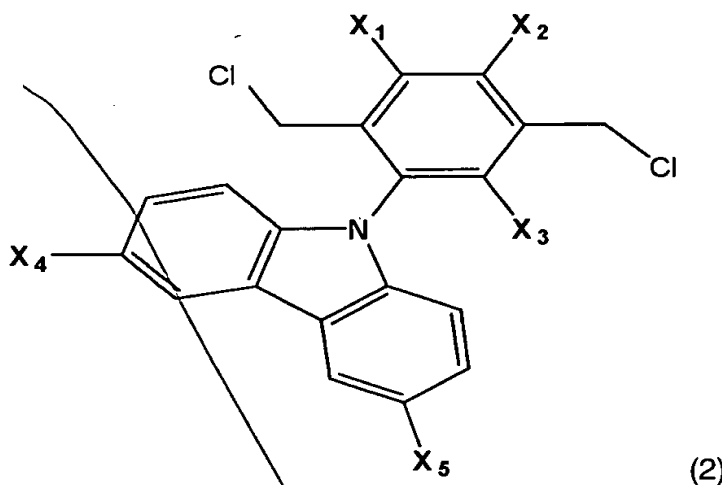
09986136-110701

17. A method of producing an electroluminescent polymer,
represented by the following formula (1):



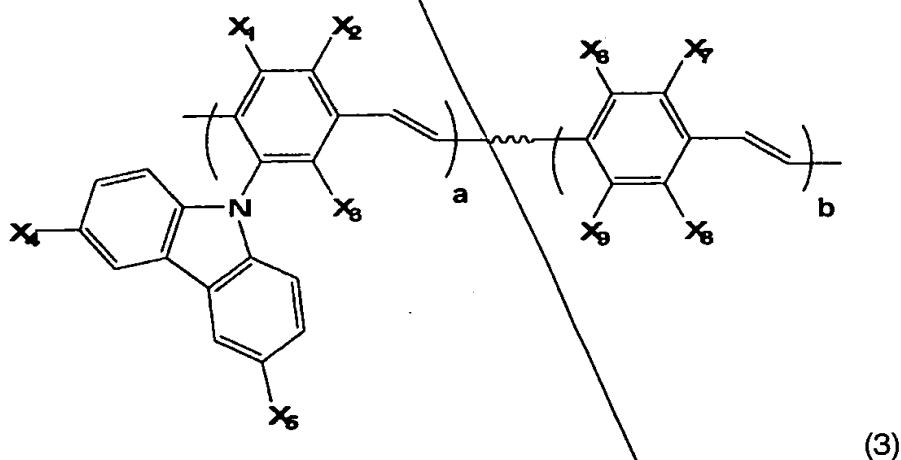
wherein X_1 to X_5 are independently a hydrogen atom, a linear alkyl or alkoxy group having 1 to 40 carbon atoms, a branched alkyl or alkoxy group having 3 to 40 carbon atoms, a cyclic alkyl group having 5 to 40 carbon atoms, a silyl group, or an aromatic group having 6 to 14 carbon atoms which is unsubstituted or substituted with at least one selected from the group consisting of an alkoxy group having 1 to 40 carbon atoms and an amine group,

the method comprising the steps of dehydrohalogenation and 1,6-addition elimination of a carbazole-containing 1,4-bis(chloromethyl)-carbazolyl-benzene represented by the following formula (2), under alkali conditions:



wherein X_1 to X_5 are defined as in the above formula (1).

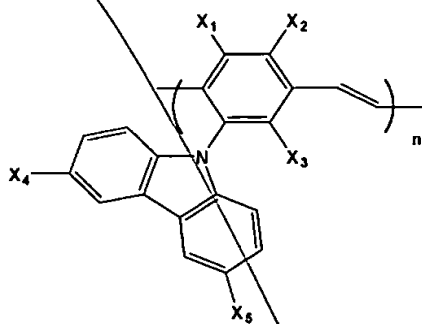
18. A method of producing an electroluminescent copolymer represented by the following formula (3):



wherein, X_1 to X_9 are independently a hydrogen atom, a linear alkyl or alkoxy group having 1 to 40 carbon atoms, a branched alkyl or alkoxy group having 3 to 40 carbon atoms, a cyclic alkyl group having 5 to 40 carbon atoms, a silyl group substituted with at least one alkyl group having 1 to 40 carbon atoms, or an aromatic group having 6 to 14 carbon atoms which is unsubstituted or substituted with at least one selected from the group consisting of an alkoxy group having 1 to

40 carbon atoms and an amine group, and a and b are numbers such that $0.1 \leq a/(a+b) \leq 0.9$, and wherein at least one of the X substituents is a group other than a hydrogen atom,

the method including the step of copolymerizing (a) a monomer unit of an electroluminescent polymer represented by the following formula (1):



(1)

wherein X_1 to X_5 are independently a hydrogen atom, a linear alkyl or alkoxy group having 1 to 40 carbon atoms, a branched alkyl or alkoxy group having 3 to 40 carbon atoms, a cyclic alkyl group having 5 to 40 carbon atoms, a silyl group, or an aromatic group having 6 to 14 carbon atoms which is unsubstituted or substituted with at least one selected from the group consisting of an alkoxy group having 1 to 40 carbon atoms and an amine group, with (b) a PPV-based monomer.